

Team id - PNT2022TMID14587

SPRINT-4

CODE IMPLEMENTATION

TEAM ID	PNT2022TMID14587
PROJECT TITLE	REAL-TIME RIVER WATER QUALITY MONITORING AND CONTROL SYSTEM
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```
import serial import time
import csv import numpy as
np import matplotlib.pyplot
as plt ser

=

serial.Serial('/COM6',9600)
ser_bytes = ser.readline(10)
```

```
print (ser_bytes)

ser.flushInput() while True:

    try:
        ser_bytes = ser.readline() decoded_bytes =
        float(ser_bytes[0:len(ser_bytes)-2].decode("utf-8"))
        print(decoded_bytes)

    temp = float(decoded_bytes(1:3)) turb =
    float(decoded_bytes(4:6))    pH    =
    float(decoded_bytes(6:8))    with
    open("test_data.csv","a") as f: writer =
    csv.writer(f,delimiter=",")

    writer.writerow([time.time(),decoded_b
    ytes])    except:    print("Keyboard
    Interrupt")    ser.close()    break()    t =
    np.arange(0.0, 2.0, 0.01) s = 1 +

    np.sin(2*np.pi*t)    plt.plot(t,    s)
    plt.xlabel('time (s)') plt.ylabel('Celsiusus
    (C)')    plt.title('Temperature')
    plt.grid(True)

    plt.savefig("Temperature.png")

    plt.show()    Serial.begin(9600);
    sensors.begin();    int sensorValue =
```

```
analogRead(A1);          voltage    =
sensorValue * (5.0 / 1024.0);

}

void loop(void)
{
  sensors.requestTemperatures();

  Celcius=sensors.getTempCByIndex(0);
  Fahrenheit=sensors.toFahrenheit(Celci

us); for(int i=0;i<10;i++)
{
  buf[i]=analogRead(analogInPin); delay(10);

}
for(int i=0;i<9;i++)
{
  for(int j=i+1;j<10;j++)
  {
    if(buf[i]>buf[j])

    {
      temp=buf[i];
      buf[i]=buf[j];
      buf[j]=temp;
    }
  }
}
```

```
n = 256
X = np.linspace(-np.pi, np.pi, 256, endpoint=True)
C,S = np.cos(X),
np.sin(X) plt.plot(X, C) plt.plot(X,S) plt.show()
print ("Visualization of real time sensor
Data.") print("/n") while True:
try:
ser_bytes = ser.readline() decoded_bytes =
float(ser_bytes[0:len(ser_bytes)-2].decode("utf-8"))
print(decoded_bytes) temp = float(decoded_bytes(1:3))
turb = float(decoded_bytes(4:6)) pH =
float(decoded_bytes(6:8)) with open("test_data.csv","a")
as f: writer = csv.writer(f,delimiter=",")
writer.writerow([time.time(),decoded_bytes]) except:
print("Keyboard Interrupt") ser.close() break() t =
np.arange(0.0, 2.0, 0.01) s = 1 + np.sin(2*np.pi*t) plt.plot(t,
s)
```